

May, 11/24/2005 1:39:25 PM
Linda Lacelle

Process Sheet

Split - 1

Customer : CU-DAR001 Dart Helicopters Services
Job Number : 24865
Estimate Number : 10467
P.O. Number : N/A
This Issue : 11/24/2005 S.O. No. : N/A
Prsht Rev. : NC
First Issue : N/A Type : MACHINED PARTS
Previous Run : 24865

Drawing Name : FWD TUBE ASSEMBLY
Part Number : D3391021
Drawing Number : D3391 REV B AH
Project Number : N/A Rev D 06.03.28
Drawing Revision : B
Material : N/A
Due Date : 12/20/2005 Qty: 5 Um: Each

Written By : SEE COMMENT BELOW
Checked & Approved By : SEE ABOVE USER & DATE
Comment : Est. A 05.09.13 New issue KJ/JLM

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 D6013047 SKIDTUBE MAT'L



Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)
SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description	Batch
1	D6013-047	Extrusion	323935

ml 05/11/28 5

2.0 LANDING GEAR 1 Band saw E LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1 Bandsaw E
Cut extrusion to 46.52 +0.010 -0.020

ml 05/11/28 5

3.0 BRAKE NC NC BRAKE



Comment: NC BRAKE
Bend as per Dwg D3391

DP/B 05-12-15

10

4.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Jas 12-23

5.0 HAAS1 HAAS CNC VERTICAL MACHINING #1

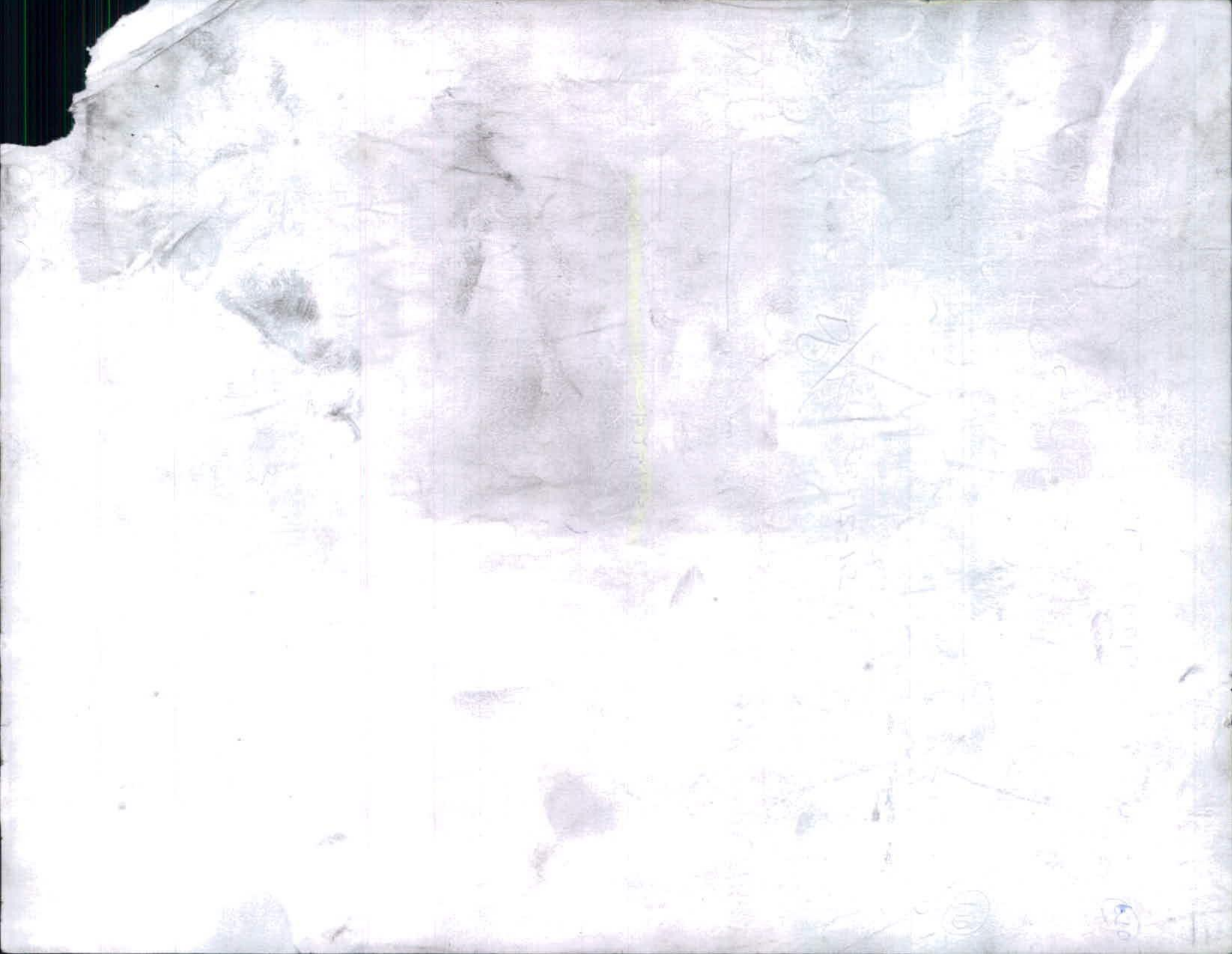


Comment: HAAS CNC VERTICAL MACHINING #1
1-Machine as per Folio FA590 Rev. C & Dwg D3391 Rev. C
Identify as D3391-1

2-Deburr

SA 06-01-05

9



Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 24865

Part Number: D3391021

Job Number:



Seq. #:	Machine Or Operation:	Description :
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6.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
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Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SA 06.01.05

(10)

SP11

7.0	QC8	SECOND CHECK
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Comment: SECOND CHECK

Joe-0328

(3)

PTO

8.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

Drill and c/sink float bag holes as per Dwg D3391 using DT8798 DP06-1-7 (2)

Drill wearplate holes as per Dwg D3391 DP06-1-7 (2)

Deburr DP06-1-7 (2)

9.0	HAND FINISHING1	HAND FINISHING RESOURCE #1
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Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1 DP06-1-7 (2)

10.0	POWDER COATING	POWDER COATING
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Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

A.M. 06-04-05

(1)

11.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION
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Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DL 06/04/05

(1)

12.0	D3401041	Tow Cap Assembly
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)

Tow Cap Assembly

Pick:

Qty	Part Number	Description	Batch
1	D3401-041	Tow Cap	B25548

FL 06/04/05 (1)

13.0	AN3C4A	Bolt
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Comment: Qty.: 4.0000 Each(s)/Unit Total: 20.0000 Each(s)

Bolt

Pick:

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: D2391-021 PAR #: N/A Fault Category: Prod / machine parts NCR: Yes No DQA: Yes Date: 06/04/12
 QA: N/C Closed: _____ Date: _____

NCR: <u>2485</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06-01-05	4	1 tube is A 1/2" too long.	<i>AS</i>	cut 1/2" off machined end, before machining. cut to SA 06-01-06	SA 06-05-28	<i>AS</i> 06-05-28	<i>AS</i>	<i>AS</i> 06-01-05
06-01-06	5	1 tube moved while machining (scrap) Slipped in vise while cutting out 1.429 (detrit-c)	<i>AS</i>	Scrap and destroy	SA 06-01-06	<i>AS</i> 06-03-28	<i>AS</i>	<i>AS</i> 06-03-28
06-03-28	5	1 tube scrap. (see sec D-D). Dim is 3.550 top to bottom, but mat'l thickness on bottom slot (.687) is .006. UNACCEPTABLE.	<i>AS</i>	scrap & destroy	SA 06-05-28	<i>AS</i> 06-03-28	<i>AS</i>	<i>AS</i> 06-03-28

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 24865

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

Qty

Part Number

Description

Batch

4

AN3C4A

Bolt

m19413

FC 06 04 05 ①

14.0

NAS1330C3KB166

Rivnut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 120.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

24

NAS1330C3KB166

Insert

m18308

FC 06 04 05 ①

15.0

NAS1515H3

Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total : 20.0000 Each(s)

Washer

Pick:

Qty

Part Number

Description

Batch

4

NAS1515H3

Washer

m19633

FC 06 04 05 ①

16.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install inserts and Tow Cap as per Dwg D3391

Identify as D3391-021

FC 06 04 10 ①

17.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

FC 06 04 11 ①

18.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

W/A

19.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

FC 06 04 12 ①

Job Completion



W/A 06 04 12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06/01/17	5?	1. the dim. 3.580 was 3.566 dim 3.300 was 3.273 dim 1.429 was 1.400			SD			
	✓ *	2. the dim 3.580 was 3.595 dim 1.429 was 1.390 dim 4.250 was 4.280	<i>[Signature]</i>	Acceptable, see e-mail		2 05-01-18	<i>[Signature]</i>	2 06-01-18
06/01/17	?	3. the dim 3.300 was 3.282 dim 3.580 was 3.556 dim 4.250 was 4.280			SD			
	5 ✓ 3	4. the dim 1.429 was 1.390 dim 3.580 was 3.605 dim 4.250 was 4.280	<i>[Signature]</i>	Acceptable, see e-mail		2 06-01-18	<i>[Signature]</i>	2 06-01-18
06/01/17	5?	5. the dim 3.300 was 3.320 dim 1.429 was 1.405 dim 3.580 was 3.626 dim 4.250 was 4.280			SD			

NOTE: Date & initial all entries
 3.300 is 3.282
 3.580 is 3.556

Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Nov 17, 2005
03:30 pm

Work Order No	:	0024865	Department Code:	
Project Name	:	D3391-021	Burden Flags	: NNNNNNN
Project For	:	WK550	WO Status	: Open
Work Order Type	:	Main	Invoice State	: Not Invoiced
Main WO Number	:		Invoice Date	:
House Part Number	:	D3391-021	Invoice Number	:
Description	:	Fwd Tube Assembly	Invoice Amount	: 0.00
Manufactured	:	Yes		
Amount Req'd	:	5	Order Entry No	:
Amount Done	:	0	OE Value	: 0.00
Start Date	:	11-17-05		
Est Finish Date	:	12-20-05	Est Margin	: 0.000%
Act Finish Date	:		Actual Margin	: 0.000%
Drawings Req'd	:	No		
Ok for Approval	:			
Approval Rec'd	:		\$0 Posted to Finished Goods	

	Estimated	Actual	Var. %	Posted	To Post
Material Cost	: 0.00	0.00	0.00	0.00	0.00
Engineering Hours	: 0.00	0.00	0.00		
Engineering Cost	: 0.00	0.00	0.00	0.00	0.00
Production Hours	: 0.00	0.00	0.00		
Production Cost	: 0.00	0.00	0.00	0.00	0.00
Packaging Hours	: 0.00	0.00	0.00		
Packaging Cost	: 0.00	0.00	0.00	0.00	0.00
OverHead Hours	: 0.00	0.00	0.00		
OverHead Cost	: 0.00	0.00	0.00	0.00	0.00
CNC Hours	: 0.00	0.00	0.00		
CNC	: 0.00	0.00	0.00	0.00	0.00
Misc. Hours	: 0.00	0.00	0.00		
Misc.	: 0.00	0.00	0.00	0.00	0.00
Burden	: 0.00	0.00	0.00		
Total Cost	: 0.00	0.00	0.00		
Margin	: 0.000	0.000			
Selling Cost	: 0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done	: 0.00	0.00
Profits/(Loss)	: 0.00	0.00

Peter Hum

From: David Shepherd [davids@dartaero.com]
Sent: Tuesday, January 03, 2006 9:58 AM
To: Peter Hum
Cc: Bill Beckett
Subject: Re: 412 float skidtube extension saddle holes

I think this is acceptable.

David

----- Original Message -----

From: "Peter Hum" <phum@dartaero.com>
To: "David Shepherd (E-mail)" <davids@dartaero.com>
Cc: "Bill Beckett (E-mail)" <billb@dartaero.com>
Sent: Tuesday, January 03, 2006 7:03 AM
Subject: 412 float skidtube extension saddle holes

> Hi David,
>
> Bill and I recently opened up an aft tube extension saddle holes to 0.454
> diameter. The outer tube (6061), saddles, and bushings have remained the
> same size.
>
> Opening the holes allowed better fit for the bushings and bolts to slide
> through.
>
> Its important to remember that we haven't changed the size of the holes of
> the saddle, outer tube (6061), and diameter of the bushings. Therefore,
> under prepared landing surface conditions, the bearing loads have not
> changed in comparison to our standard D205-634 non-float 205 skidtube.
>
> David, I am looking for your approval to open the fwd and aft tube
extension
> saddle and ground handling holes to 0.454 in diameter.
>
> Thanks
>
> Peter
>
>

Peter Hum

From: David Shepherd [davids@dartaero.com]
Sent: Thursday, January 05, 2006 2:58 PM
To: Peter Hum
Subject: Re: D412-742 fwd tube tolerance change

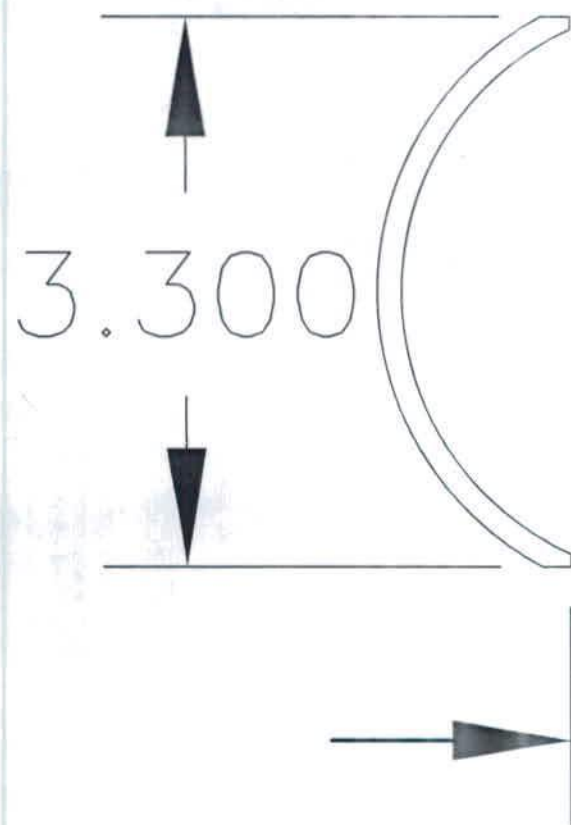
This is an acceptable deviation.

David

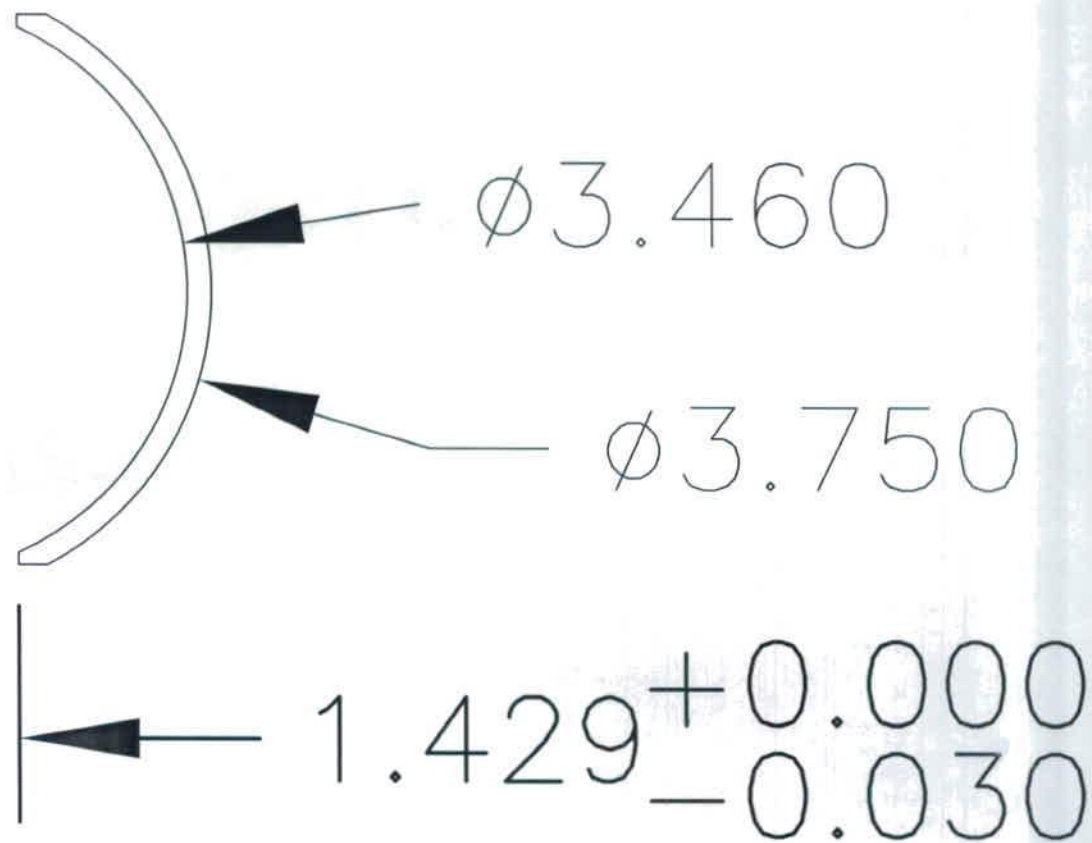
----- Original Message -----

From: "Peter Hum" <phum@dartaero.com>
To: "David Shepherd (E-mail)" <davids@dartaero.com>
Sent: Thursday, January 05, 2006 12:13 PM
Subject: D412-742 fwd tube tolerance change

> Hi David,
>
> Is it acceptable to change the tolerance of the large slot that
> accommodates the I-beam in the fwd tube to (+0.000,-0.030)? If the
> dimension is at the lower limit, this will in fact strengthen the part.
>
> I've attached a sketch to show which dimension is changing
>
> Peter Hum
> Mechanical Designer
>
> DART Aerospace Ltd.
> Email...phum@dartaero.com
> Phone...613-632-3336
> Fax.....613-632-4443
>
>



+



AEROSPACE LTD

Work Order: 24865

Description: Fwd Inse

Part Number: D3391-021

Inspection Dwg:

Rev:

Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST



First Article



Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
7.000		7.000	/			
5.250		5.250	/			
1.750		1.749	/			
1.500		1.500	/			
Ø.454		.454	/			
R.063		R.063	/			
3.750		3.753	/			
3.460		3.462	/			
.687	+1.000 -1.000	.688	/			
3.580		3.573	/			
R.031		R.031	/			
3.300		3.299	/			
1.429	+1.000 -0.030	1.427	/			
4.250		4.249	/			
4.250		4.252	/			
R.188		R.188	/			
R.187		R.188	/			

Measured by: SD

Date: 06-01-05

Audited by:

Date:

Prototype Approval:

Date:

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/RF	

100.00

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ater Hum

From: David Shepherd [davids@dartaero.com]
Sent: Tuesday, January 17, 2006 3:15 PM
To: Peter Hum
Subject: Re: D3391-1 FWD TUBE DEVIATIONS

Assuming that this part fits with the middle tube it mates with, the deviations listed below are acceptable.

David

----- Original Message -----

From: "Peter Hum" <phum@dartaero.com>
To: "David Shepherd (E-mail)" <davids@dartaero.com>
Sent: Tuesday, January 17, 2006 1:04 PM
Subject: D3391-1 FWD TUBE DEVIATIONS

> David,
>
> In manufacturing the fwd tube, there have been tubes that are out of
> tolerance. The dimension 3.580" is actually 3.595" and the 1.429"
dimension
> is 1.390" as shown in the attached sketch. The tolerance of the 1.429"
> dimension was previously changed to (+0.000,-0.030). In both dimensions,
the
> end result is more material. Are these deviations acceptable?
>
> Peter Hum
> Mechanical Designer
>
> DART Aerospace Ltd.
> Email...phum@dartaero.com
> Phone...613-632-3336
> Fax.....613-632-4443
>
>

